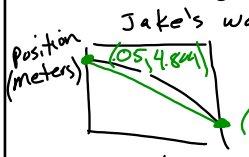
2.4a Average Rate of Change

Find the average velocity for the trip



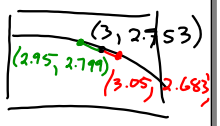
$$\text{ave vel} = \frac{\Delta p}{\Delta t}$$

$$-.851 \text{ m/s}$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{.594 - 4.804}{5 - .05}$$

Aug 23-8:59 AM

Estimate the velocity at t=3 using the data



right hand difference quotient (rhdq)

$$-1.4 \frac{m}{s} = \frac{2.683 - 2.753}{3.05 - 3} \frac{m}{s}$$

left hand difference quotient (lhdq)

$$\frac{2.753 - 2.799}{3 - 2.95} = -.92 \frac{m}{s}$$

symmetric difference quotient (sdq)

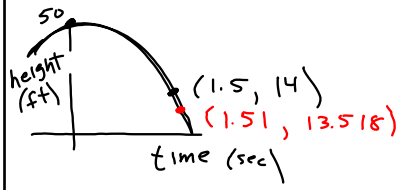
$$\frac{2.683 - 2.799}{3.05 - 2.95} = -1.16 \frac{m}{s}$$

Aug 24-9:22 AM

Find the regression curve and trace as close as you can to the desired points. Use the regression curve points to estimate velocity.

Aug 26-5:59 PM

A ball is dropped from the top of a 50 ft tower. Its height above ground after t seconds is $50 - 16t^2$ How fast is it falling after ~~2~~ 1.5 seconds?



$$\text{rhdq} = \frac{13.5518 - 14}{1.51 - 1.5} = -48.2$$

Aug 24-9:34 AM

The table shows the coordinates of a moving body. Estimate the velocity at t=2.5.

t sec	0	.5	1	1.5	2	2.5	3	3.5	4
s (ft)	3.5	-4	-8.5	-10	-8.5	-4	3.5	14	27.5

$\frac{3.5 - -8.5}{3-2} = 12 \frac{ft}{sec}$

regression $f(x)$

$\frac{f(2.51) - f(2.49)}{2.51 - 2.49}$

Aug 24-9:40 AM